



Work Instruction

DIRECTIVE NO. 270-WI-5330.0.1J

EFFECTIVE DATE: September 10, 2015

EXPIRATION DATE: September 10, 2020

APPROVED BY Signature: Marilyn C. Tolliver

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TITLE: Division

COMPLIANCE IS MANDATORY

Responsible Office: 270/Information and Logistics Management Division

Title: Inspection and Test of Project Parts

PREFACE

P.1 PURPOSE

This procedure describes the process for managing and documenting inspection and test of electrical, electronic, electromechanical (EEE) parts and mechanical hardware.

P.2 APPLICABILITY

This procedure applies EEE parts and mechanical hardware for space flight projects and ground support systems that are covered under the scope of the Goddard Space Flight Center (GSFC) Management System (MS) Policy. Inspection and test of these products is managed by the Code 273 Supply and Equipment Management Branch and supported by the Project Parts Section of the Code 279 logistics services contractor.

P.3 REFERENCES

- a. [270-WI-4520.2.1, Receiving Project Parts](#)
- b. [270-WI-5340.2.1, Control of Non-Conforming Project Parts](#)
- c. [300-PG-8730.6.1, GSFC Electrostatic Discharge \(ESD\) Control Plan](#)
- d. [541-PG-8072.1.2, GSFC Fastener Integrity Requirements](#)
- e. [500-PG-4520.2.1, Electrical, Electronic and Electromechanical \(EEE\) Counterfeit Parts Avoidance Plan \(CPAP\)](#)
- f. [GID 5330.1, Work Order Authorization \(WOA\) Process](#)
- g. [GPR 4520.2, Receiving Inspection and Test](#)
- h. [GPR 5340.4, Problem Reporting and Problem Failure Reporting](#)
- i. GSFC Form 20-2, Receiving Inspection & Test Form (RITF)
- j. GSFC Form 4-33, Non-conformance Tag
- k. Statement of Work

P.4 CANCELLATION

270-WI-5330.0.1I, Inspection and Test of Project Parts

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P.5 TOOLS, EQUIPMENT, AND MATERIALS

XRF Machine, microscope/camera, ESD certified lab, benches and smocks.

P.6 SAFETY PRECAUTIONS AND WARNINGS

No special safety precautions for this function.

P.7 TRAINING

- a. All personnel who prepare receiving inspection instructions on a RITF or perform receiving inspection and test activities should be familiar with 300-PG-8730.6.1, 500-PG-4520.2.1, GPR 4520.2, 541-PG-8072.1.2 and GPR and GID 5330.1. A training module for GPR 5330.1 may be found at <http://arioch.gsfc.nasa.gov/ISO9000/Training/index.htm>.
- b. Certification is required in order to handle any material classified as Electrostatic Discharge Sensitive (ESDS), as guided by 300-PG-8730.6, GSFC Electrostatic Discharge (ESD) Control Plan.

P.8 RECORDS

Record Title	Record Custodian	Retention
GSFC Form 20-2, Receiving Inspection & Test Form (RITF) or equivalent for application to software products.	Project Parts Warehouse Supervisor	Retention depends on the historical significance of the product (See NPR 1441.1, NASA Record Retention Schedules [NRRS] 8/101 for description of historical significance): • NRRS 8/101: Permanent. Cut off records at close of program/project or in 3-year blocks for long term programs/projects. Transfer to National Archives 7 years after cutoff. -or- • NRRS 8/103: Engineering test and evaluation data. Temporary. Destroy between 5 and 30 years after program or project termination.

*NRRS – NASA Records Retention Schedules (NPR 1441.1)

P.9 MEASUREMENT/VERIFICATION

There are no metrics associated with this instruction.

INSTRUCTIONS

In this document, a requirement is identified by “shall,” a good practice by “should,” permission by “may” or “can,” expectation by “will,” and descriptive material by “is.”

1. General Procedures and Responsibilities

This section contains procedures and responsibilities applicable to managing and documenting material inspection and testing.

1.1 Supply Operations Branch Manager Responsibilities

The Code 279 Supply Operations Branch Manager is responsible for the management and overall supervision of Supply activities and personnel related to EEE parts and mechanical parts supporting GSFC and other NASA Center Projects.

1.2 Acquisition Specialist Responsibilities

As part of the procurement package, which includes the Purchase Order and SOW, the Project Parts Acquisition Specialist will annotate receiving instructions by completing a GSFC 20-2, Receiving Inspection and Test form, with test requirements as provided by the customer. The instructions will identify the inspection/test agent and location, provide any applicable storage, handling, or transportation instructions, identify the tests to be performed and the pass/fail criteria for those tests, and any other material testing requirements as identified by the customer.

1.3 Receiving Inspector

The Receiving Inspector is responsible for physically shipping items to inspection sites and preparing Transportation Tickets when the items are returned from testing. After creating the tickets, the Receiving Inspector will notify the Material Coordinator (MC) for customer pick-up or delivery.

1.4 Material Coordinator

The Material Coordinator (MC) is responsible for notifying the project representative that the material has returned from testing, assigning testing charges and processing necessary transactions, where applicable.

2. Inspection and Test of Material for Stock

2.1 Material for Inspection and Testing

For all materials identified for inspection and test, the MC shall:

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- a. Validate the stock number, quantity, and date that the material is scheduled to ship from and return to inventory.
- b. Process any necessary transactions using manual or automated systems to indicate material is under inspection/test.
- c. Process any necessary transactions using manual or automated systems to indicate material has been removed from or returned to inventory.
- d. Process any inventory adjustments using manual or automated systems to indicate changes in quantity or serviceable or unserviceable status.

2.2 EEE Material for Stock

For EEE material ordered for stock and identified as requiring inspection and test, the MC, Acquisition Specialist or Inspector shall:

- a. The MC shall coordinate with the Project Parts Engineer (Code 560) to identify EEE material for inspection and test and obtain material inspection and test instructions for that material.
- b. The Acquisition Specialist shall initiate a GSFC Form 20-2 for the material.
- c. The Inspector shall prepare and schedule material for inspection and test.
- d. The Inspector will coordinate with the appropriate functional areas to ensure material is delivered to and returned from the inspection and test, review inspection and test data for pass/fail of material and report nonconformance of materials.

2.3 Stock Flight Fasteners and Ground Support Material

For Flight Fasteners and Ground Support Material for stock the MC, Acquisition Specialist or Inspector shall:

- a. The MC shall identify fasteners and ground support material for inspection and test.
- b. The Inspector shall prepare and schedule material for inspection and test.
- c. The Acquisition Specialist shall prepare material inspection and test instructions using the GSFC Form 20-2, ensuring appropriate levels as required by 541-PG-8072.1.2, Goddard Space Flight Center Fastener Integrity Requirements.
- d. The Inspector shall coordinate with the appropriate functional areas to ensure material is delivered to and returned from the inspection and test site.

- e. The Inspector shall report nonconformance of material.

2.4 Pre-tested Material

In the case of pre-tested project parts, the manufacturer's test data will be requested as part of the procurement package.

3. Managing Inspection and Test of Material for Projects

Instructions regarding the inspection and testing of materials purchased for a specific project may be coordinated in advance or on a case by case basis by Code 270, the applicable Project's representative, and Code 500 as applicable. Code 270 is responsible for ensuring that all Flight Fasteners that are being stocked in inventory are tested in accordance with 541-PG-8072.1.2. All other materials procured specifically for a project's use will receive inspection and test only at the specific request of the customer.

4. Nonconformance Reporting

When products or services within the [scope of the MS](#) are found to not meet specifications, the material will be segregated and tagged with a GSFC 4-33 Nonconforming Product tag and the event will be annotated in the PR/PFR system, as required by GPR 5340.4. The resulting PR/PFR number shall be entered on the appropriate GSFC Form 20-2 block associated with the event. Process nonconformances, customer complaints, and audit findings will be annotated and tracked in the META system in accordance with GPR 5340.2. Typical examples of nonconformances which must be reported in META include the material damage that occurs during storage and issue, defective services that result in damage, and customer complaints. This applies to Code 270 personnel as well as individuals or organizations that provide equipment or services to Code 270 and covered by the scope of the MS.

APPENDIX A - DEFINITIONS

A.1 Acquisition – The activity of acquiring products. This activity includes, but is not limited to, the following methods of obtaining products: contracts, purchase orders, credit card buys, blanket purchase agreements, memorandums of agreement, property transfers from organizations outside GSFC, and Customer Supplied Product (CSP).

A.2 AMMS – The Advanced Materials Management System. A government database used by the Information and Logistics Management Division support contractor to purchase, receive, and inventory ILMD purchased materials. Central Receiving personnel have access to the Receiving module of AMMS in order to document the receipt of incoming materials.

A.3 Inspection/Test Personnel- Representatives of the Code 500 Directorate responsible for inspection and testing of incoming materials.

A.4 Kind, count, and condition inspection – Describes the basic inspection that is performed by Central Receiving personnel on all incoming GSFC and ILMD purchased materials. These terms have the following meaning:

- a. **Kind** – ensures that the part number and description match what was purchased.
- b. **Count** – confirms that the quantity received matches the quantity purchased in the purchasing documentation.
- c. **Condition** – visual inspection to determine if materiel damage is present.

A.5 Project Parts - EEE parts or mechanical hardware that are obtained by the Code 279 Project Parts Section for distribution to projects or stock. These parts may be used by the projects for engineering and/or flight equipment.

A.6 Receiving Inspection – The inspection performed on a product during initial receipt after it has been acquired is to verify that specified requirements for the product have been met. As a minimum, a kind, count, and condition inspection shall be performed (see definition A.4). Additional inspections and tests (e.g., dimensional testing) may also be performed as part of the receiving inspection process if requested by the acquisition initiator/customer/owning organization upon submittal of the purchase request. These additional inspection/acceptance requirements shall be placed on a GSFC FORM 20-2. Receiving inspection is not required for subsequent receipts of the product when it has been performed previously. For example, receiving inspection is not required for returning products that were temporarily located at off-site locations.

A.7 Receiving Inspection Instructions – Documented instructions describe who performs receiving inspection and test activities, what these activities shall be, where they shall be performed, and what shall be considered acceptable. The instructions shall include any special handling or storage requirements applicable to the product. Receiving inspection instructions shall be documented (or referenced) on GSFC Form 20-2, or equivalent for application to software products.

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A.8 Test - Screening and qualification tests performed in accordance with 541-PG-8072.1.2, GSFC Fastener Integrity Requirements

Appendix B - Acronyms

AMMS	Advanced Materials Management System
EEE	Electrical, Electronic and Electromechanical
GDMS	Goddard Directives Management System
GSFC	Goddard Space Flight Center
ILMD	Information and Logistics Management Division
MC	Material Coordinator
MS	Management System
PR/PFR	Problem Reporting/Problem Failure Reporting
SOW	Statement of Work
WIs	Work Instructions

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CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
Baseline	1 Oct. 98	
A	1 Feb. 99	<ul style="list-style-type: none"> - Adds information to section P4 on Quality Records. - Adds section 8.5 on Nonconformance Reporting
B	27 Apr. 99	<ul style="list-style-type: none"> - Inserted new P8 Cancellation. Changed P8 to P9 and renumbered all subparagraphs in P9. - 9.5.1 Update NCR organization with correct project name and lead designation. - Add wording to indicate that all audit discrepancies will be documented with an NCR - Miscellaneous editorial changes to improve clarity
C	1 June 99	<ul style="list-style-type: none"> - Modify P4 in identify proper Record Retention Schedule
D	13 Aug. 99	<ul style="list-style-type: none"> - Modified 9.5 to provide for both major and minor nonconformances.
E	10 Feb. 00	<ul style="list-style-type: none"> - Changed the web site for the automated NCR/CAS system to http://ncr.gsfc.nasa.gov. - 9.3.2 Replace Project Parts Engineer with Inventory Manager. - 9.3.2 First bullet – Add “Coordinate with the Project Component Engineering Group (PCEG)...” - 9.3.2 Third bullet – Change to read “Consult with PCEG in preparing material inspection and test instructions, ensuring appropriate levels as required by GSFC-311-INST-001. - 9.3.2 Sixth bullet – Change to read “Review inspection and test data for pass/fail of material.” - Change Inspection/Test Personnel Representatives from Code 300 to Code 500 - Section 4.1.1 Major Nonconformances change the Sub Project Administrator (SPA) to Nonconformance Lead (NCL)

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F	17 Jan. 03	<ul style="list-style-type: none"> - Converted to most recent WI template format. - Updated website to include forward slash at the end. - Added GPR 1710.1 to P.3 - Added sections 1.3 and 1.4 - Modified 2.3 to read Inventory Manager instead of Project Parts Mechanical Parts Technician. - Modified section P7. to include RITS and ESD training - Modified P.8b. so Record Custodian reads Acquisition Specialist and not Anstec. - Modified section P.9 - Removed GPR 5330.3 from references
G	4 Feb. 05	<ul style="list-style-type: none"> • As directed during the FY04 Center Rules Review, the Responsible Office modified this document to remove requirements that were no longer needed and to clearly distinguish requirements from supporting information. Administrative changes were made throughout to correct responsible organization names and codes, and to re-title Goddard Procedures and Guidelines (GPG) to Goddard Procedural Requirements (GPR) and NASA Procedures and Guidelines (NPG) to NASA Procedural Requirements (NPR). • Updated Section 4 “Nonconformance Management”
G	14 May 06	<ul style="list-style-type: none"> • Administratively updated to reflect a change in the owning organization code from 230 to 270.
H	09 Sept. 08	<ul style="list-style-type: none"> • P3 References – added WM-001A, Workmanship Manual for Electrostatic Discharge Control • P3 References – replaced GSFC S-313-100 with 541-PG-8072.1.2, GSFC Fastener Integrity Requirements • P7 – updated link to GPR 5330.1 training module • Replaced all references to the Quality Management System (QMS) with Management System (MS) to coincide with Center changes • Section 4 – revised non-conformance reporting to coincide with updated internal procedures for processing non-conformances.
I	17 Aug. 09	<ul style="list-style-type: none"> • Administrative change to update outdated references to NASA-STD-8739.7, S-313-100, and the NCR/CAS System.
	24 Sept. 14	<ul style="list-style-type: none"> • Administratively extended for 1 year.

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J	10 Sept. 2015	<ul style="list-style-type: none">• Section P3 replaced outdated references with current controlling documents.• Section P6 replaced outdated references with current controlling documents• Section P7 replaced outdated references with current controlling documents• Updated with 541-PG-8072.1.2 Goddard Space Flight Center Fastener Integrity Requirements reference• Section 4 Nonconformances removed redundant section covered by other controlling documents and added references• Section 2.2 Changed the initiator of RITF from MC to MC, Buyer or Inspector and changed from the WOA to RITF forms. Identified Inspector specific tasks• Section 2.3 Changed the initiator of RITF from MC to MC, Buyer or Inspector and changed from the WOA to RITF forms. Identified Inspector specific tasks• Deleted Section P10 Definitions and added Appendix A Definitions and Appendix B Acronyms• Deleted A3,A4, A6 and A11 from Appendix A• Reformatted 2.2 E, F and G to clearly define the Inspector's role.
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